

CLAIMS

1. A toner for development of an electrostatically charged image, said toner comprising a binder resin, a colorant, a function imparting agent, and a charge control agent, wherein said binder resin at least contains a polyolefin resin having a cyclic structure, said polyolefin resin having a cyclic structure is composed of a resin or resin fraction having a number average molecular weight (Mn), as measured by GPC, of less than 7,500 and a resin or resin fraction having said number average molecular weight of 7,500 or more, and in said polyolefin resin having a cyclic structure, a resin or resin fraction having an intrinsic viscosity (i.v.) of 0.25 dl/g or more, and a number average molecular weight (Mn) of 7,500 or more and a weight average molecular weight (Mw) of 15,000 or more, as measured by the GPC method, is contained in a proportion of less than 50% by weight based on the entire binder resin.
2. The toner for development of an electrostatically charged image as claimed in claim 1, wherein said binder resin consists of 1 to 100 parts by weight of said polyolefin resin having a cyclic structure, and 99 to 0 parts by weight of other resin comprising one of a polyester resin, an epoxy resin, a polyolefin resin, a vinyl acetate resin, a vinyl acetate copolymer resin, a styrene-acrylate resin and other acrylate resin, a mixture, hybrid polymers or blends of any of them.
3. The toner for development of an electrostatically charged image as claimed in claim 1 or 2, wherein said polyolefin resin having a cyclic structure has at least one polar functional group.

4. The toner for development of an electrostatically charged image as claimed in claim 3, wherein said polyolefin resin having a cyclic structure has at least one polar functional group selected from a carboxyl group, a hydroxyl group and an amino group.

5. The toner for development of an electrostatically charged image as claimed in ~~any one of claims 1 to 4~~, wherein said polyolefin resin having a cyclic structure is an ionomer.

6. The toner for development of an electrostatically charged image as claimed in ~~any one of claims 1 to 4~~, wherein said polyolefin resin having a cyclic structure has a crosslinked structure.

7. The toner for development of an electrostatically charged image as claimed in claim 6, wherein said polyolefin resin having a cyclic structure has a structure crosslinked by a diene, ester, amide, sulfide or ether.

8. The toner for development of an electrostatically charged image as claimed in ~~any one of claims 1 to 7~~, wherein at least one polar wax is used as the function imparting agent.

9. The toner for development of an electrostatically charged image as claimed in claim 8, wherein at least one polar wax selected from amid wax, carnauba wax, higher fatty acids and their esters, higher fatty acid metallic soaps, partially saponified higher fatty acid esters or higher aliphatic alcohols is used as the function imparting agent.

10. The toner for development of an electrostatically charged image as claimed in ~~any one of claims 1 to 7~~, wherein at least one nonpolar wax is used as the function imparting

agent.

11. The toner for development of an electrostatically charged image as claimed in claim 10, wherein at least one nonpolar wax selected from polyolefin wax or paraffin wax is used as the function imparting agent.

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12. The toner for development of an electrostatically charged image as claimed in ~~any one of claims 1 to 11~~, wherein said polyolefin resin having a cyclic structure that constitutes said binder resin contains resins or resin fractions having three or more molecular weight ranges expressed by number average molecular weight (Mn), as measured by GPC, of less than 7500, 7500 or more but less than 25000, and 25000 or more.

13. Liquid dried system containing 30% by weight to 50% by weight of a dried polymerized system containing 0.5% by weight to 5% by weight of a charge control agent, 1% by weight to 10% by weight of wax, 0.1% by weight to 2% by weight of aerosol silica, 1% by weight to 10% by weight of pigment and 85% by weight to 95% by weight of a binder resin; and 50% by weight to 70% by weight of an electrolytic solution.

14. Liquid toner containing 30% by weight to 50% by weight of a mixture containing 0.5% by weight to 1.5% by weight of carbon black, 0.5% by weight to 1.5% by weight of a charge control agent and 85% by weight to 95% by weight of a binder resin; and 50% by weight to 70% by weight of an electrolytic solution.

add C5

add B6

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